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Original Research Article

Clinical Profile of Neuropsychiatric Manifestations in Alcohol Use Disorder (Audit >8)

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Abstract:

Aim of the Study: To observe the neuropsychiatric manifestations of Alcohol Use Disorder (AUDIT>8).

Material & Methods: The study was performed over a period of 1 and half year from November 2019 to March 2021. We screened 256 in patients with history of alcohol abuse from General medicine wards in Tertiary care Hospital, Telangana, Hyderabad.

Results: A total of 259 patients admitted in medicine wards with age >18 years and history of alcohol use were asked to fill the AUDIT form. Among them 131 patients scored <8 (excluded) and 128 patients scored >8 were considered for inclusion in the study. Of the 128 patients, based on exclusion criteria 48 patients were further eliminated. Finally 80 patients were included in the present study.

Conclusion: Alcohol is a known behavioral risk factor for several non-communicable diseases such as coronary artery disease, liver disease and mental health disorders. n the present study, we found that, harmful alcohol use is associated with various medical, psychiatric and social issues in inpatients of medicine wards. This study is to identify the patients having harmful alcohol habits and identifying the subclinical neuropsychiatric manifestations associated with alcohol.

Keywords: Alcohol Use Disorder; Clinical Institute of Withdrawal Assessment Alcohol Revised.

Introduction

Alcoholic beverages have been used by human beings since the beginning of recorded history. The patterns of alcohol intake around the world are constantly evolving, and alcohol is ubiquitous today. Alcohol and tobacco are the most important products of the global addictive demand and there has been found rapid increase in the per capita consumption in recent years. Recent studies shows that, more than half of all alcohol drinkers in our country fall into the criteria of hazardous drinking, India's reputation as a country with a culture of abstinence especially in matters regarding alcohol is undeserved [1].In India spirits industry has been broadly divided into three segments(a)'India-made foreign liquor' (IMFL: whisky, gin, rum, brandy, liquors, vodka);(b)'India-made country liquor' (licensed distilled spirits, made locally);(c) the illicit liquor sectors [2]. A study shows that 1.5 million in India are working in the production and sale of alcoholic beverages. Country liquor and IMFL-Whisky accounted for 91.5% of the drinks consumed in our country [3].

Various studies have been done in India trying to estimate the prevalence of alcohol use in India. A National household survey conducted in India in 2001 for estimating the extent of substance dependence for alcohol estimated that the prevalence of alcohol to be 21.4%. In North India they found that, 1-year prevalence of alcohol use was somewhere between 25% and 40%. Varma et al [4] found 18.3% prevalence of alcohol abuse in persons of & GT;50 years of age, whereas study in Kerala by Rajeev et al [5] found prevalence of alcohol use to be 12.8% across the age groups with the highest drinking prevalence of 34% in the age group under 40. Another study by Chavan et al [6]. showed highest prevalence of 38% in age group of 15-40 yrs.

Ethanol blood levels are expressed as milligrams or grams of ethanol/dl. A Standard drink is 10-12 g, as seen in 340ml of beer, 115 ml of wine, 43 ml of whisky. A Standard drink contains 300 KJ of energy/100 K Cal, but these are devoid of minerals and vitamins, and it has also been shown that it interferes with the absorption of vitamins and minerals from the intestine. Alcohol use disorders (AUDs) has been described as one of the most prevalent psychiatric disorders worldwide. WHO

has estimated around 76.3 million people are suffering from alcohol-use disorders worldwide. Alcohol use disorders are highly disabling and associated with many physical and psychiatric co-morbidities, they also contribute substantially to global morbidity and mortality [7]

Neurologic complications of Alcohol abuse is due to direct toxic effects from Alcohol itself and also from Nutritional deficiency, because alcoholics tend to eat poorly and are usually depleted of vitamins like Folic acid, Pyridoxine, Thiamine, Nicotinic acid and Vitamin A, which play vital role in normal physiological nervous system function. It is a valuable tool to evaluate the course and chronology of various psychiatric disorders and also comorbidities comprehensively. But in our study, we used the Hindi version of the DIGS by Deshpande et al [8] because of language barrier to study both psychiatric and physical manifestations related to alcohol abuse. As Alcohol related problems emerging as a major public-health concern in India. So far there is very scanty amount of literature about neurological and psychiatric manifestations of Alcohol consumption in India and overseas. The current study was undertaken in a tertiary care center and free government hospital to address this lacuna.

Aim of the Study

To observe the neuropsychiatric manifestations of Alcohol Use Disorder (AUDIT> 8).

Materials & Methods

The study was performed over a period of 1 and half year from November 2019 to March 2021 at Tertiary Care Hospital, Telangana State. After taking a well-informed written consent, patients were asked to fill the AUDIT questionnaire.128 patients scored >8 in the AUDIT. Of which 48 were eliminated based on inclusion and exclusion criteria.

Inclusion Criteria

- Persons of either sex
- Age >18 years
- AUDIT SCORE >8

Exclusion Criteria

- Patients already diagnosed with neurological disease
- Patients with seizure disorder not due to alcohol
- Patients with chronic liver disease
- Patients with stroke
- Patients with substance abuse other than alcohol and nicotine

Results

Table 1: Alcohol Use Disorder

Characteristics	Number
Patients With History Of Alcohol Use	259
Patients Scores Audit(>8)	128
Patients Included	80
Patients Excluded	48
• CLD	31
• CVA	8
• Seizure Disorder	5
• Other Drug Abuse	4

Table: 2 Demographic, Clinical and Biochemical Characteristics of the Sample [N=80]

	Mean ± Std.dev	Median	Min-Max
Age (in years)	44.34 ± 9.26	45	25-70
H/O Drinking (in years)	16.1 ± 6.61	15	5-30
Audit Score	16.35 ± 3.43	16	8-25
Hemoglobin (in gm/dl)	9.56 ± 2.42	9.5	3.3-14.8
Total Leukocyte Count (in cells/cumm)	9872.5 ± 4735.7	10250	2400-20000
Platelet (in lakhs/cumm)	2.87 ± 1.14	2.8	0.5-5.1
RBC (in millions/cumm)	3.63 ± 1.33	3.8	0-6.5
Blood Urea(in mg/dl)	48.8 ± 25.97	45	15-154
Serum Creatinine (in mg/dl)	1.05 ± 0.6	0.9	0.4-4.1
Uric Acid (in mg/dl)	4.91 ± 1.54	4.7	2.1-9.2
Total Bilirubin (in mg/dl)	2 ± 2.11	1.3	0.5-13.1
Direct Bilirubin (in mg/dl)	0.94 ± 1.15	0.5	0.2-6.7
Indirect Bilirubin (in mg/dl)	1.08 ± 1.09	0.75	0.2-6.4
SGOT (in U/L)	93.91 ± 104.81	56	18-569

SGPT (in U/L)	89.15 ± 110.04	51	15-684
ALP (in U/L)	157.88 ± 75.86	136	1.35-469
Total Protein (in Gm/Dl)	6.48 ± 0.62	6.4	5.1-8.4
Albumin (in Gm/Dl)	3.12 ± 0.56	3.1	2-4.1
Globulin (in Gm/Dl)	3.36 ± 0.45	3.4	2.1-4.4
Total Cholesterol (In Mg/Dl)	170.12 ± 58.16	161.5	86-341
LDL (in Mg/Dl)	104.09 ± 33.67	102	45-169
HDL (in Mg/Dl)	31.79 ± 7.24	31	18-51
TGL (in Mg/Dl)	137.75 ± 55.53	126	56-316
Sodium (in Mmol/L)	137.28 ± 6.03	137.5	123-149
Potassium (in Mmol/L)	4.11 ± 0.67	4.05	2.6-5.6
Calcium (in Mg/Dl)	8.34 ± 0.8	8.25	5.6-10.1
Phosphorous (in Mg/Dl)	4.4 ± 1.15	4.4	2.6-6.9
Amylase (in U/L)	123 ± 185.67	46.5	2-863
Vitamin B12 (in Pg/Ml)	468.81 ± 294.63	356.5	103-1200
Folate (in Ng/Ml)	5.91 ± 2.77	5.8	2-20

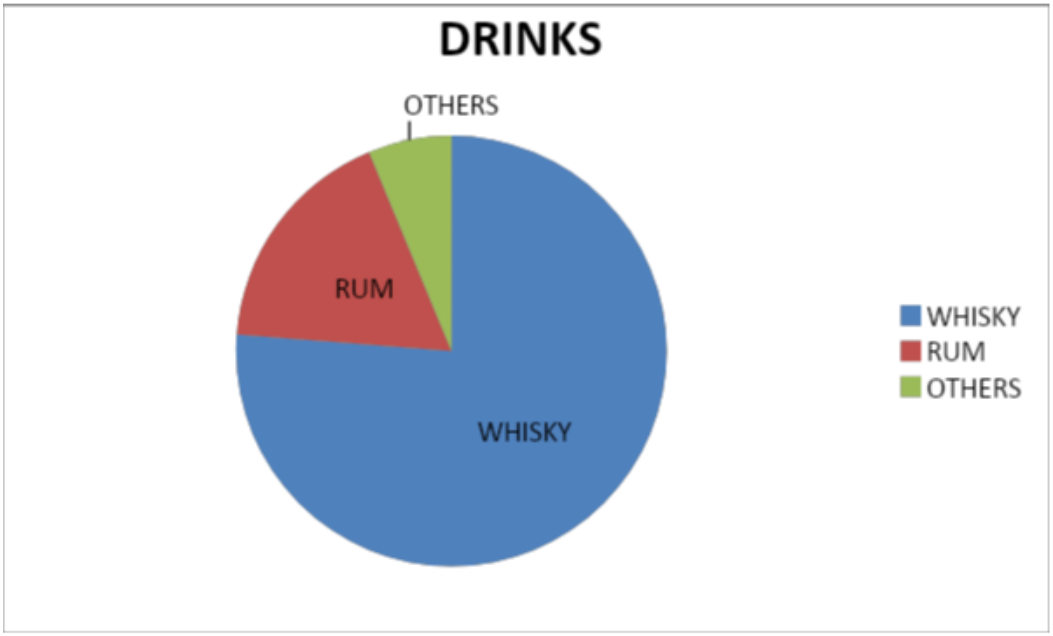

Figure 1: Pattern of drinking

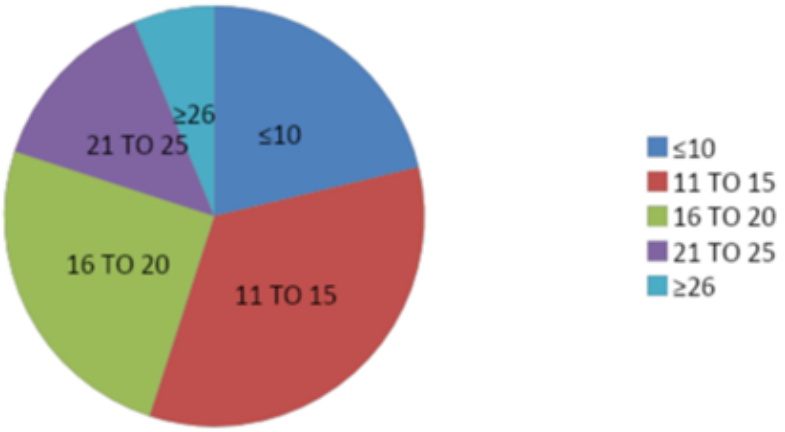

Figure 2: No. of Frequency

Table 3: Age of Onset

	Average (In Years)	Maximum (In Years)	Minimum (In Years)
Drinking	28.01± 5.23	42	16
Binge Drinking	31.34± 5.97	56	19
Dependence	33.31± 6.24	60	19
Social Issues	30.23± 5.59	45	16
Legal Issues	32.44± 5.03	40	25
Alcohol Withdrawal	29.24±5.51	45	23
Delirium Tremens	38.62±4.31	52	28

Table 4: CIWA Score

	Frequency	Percentage
Mild	5	12.82%
Moderate	10	25.64%
Severe	24	61.54%
	39	100.00%

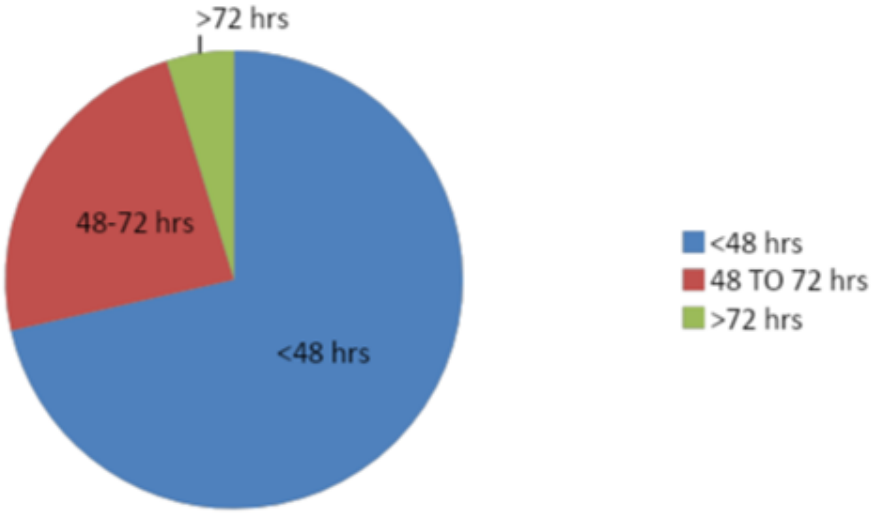

Figure 3: Onset of Seizures

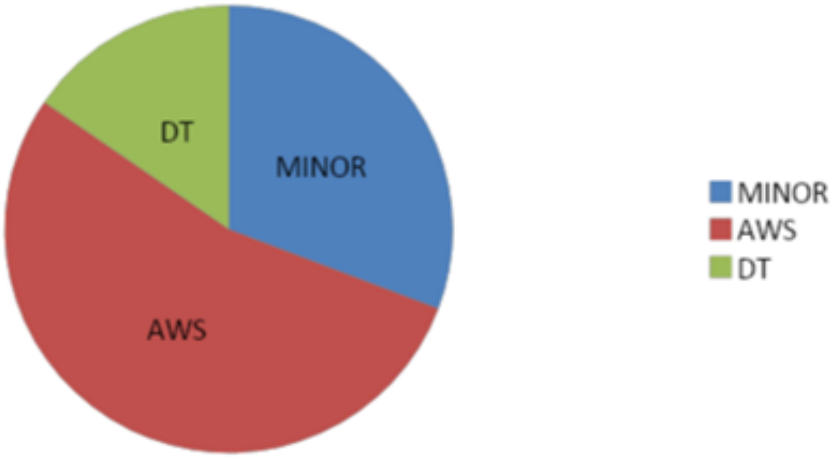

Figure 4: Alcohol withdrawal Syndrome Spectrum

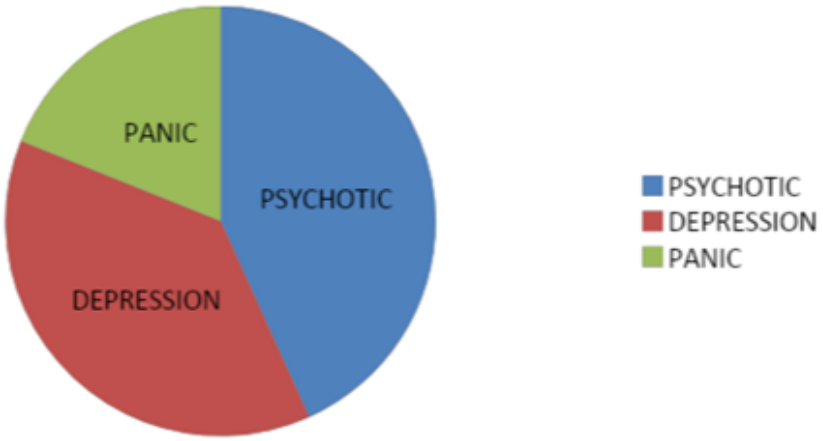

Figure 5: Psychiatric Manifestation

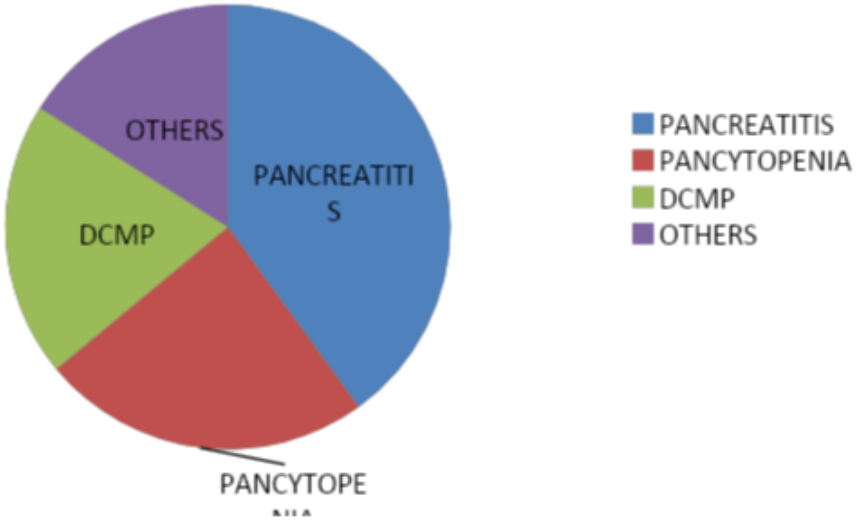

Figure 6: Alcohol Related medical illness.

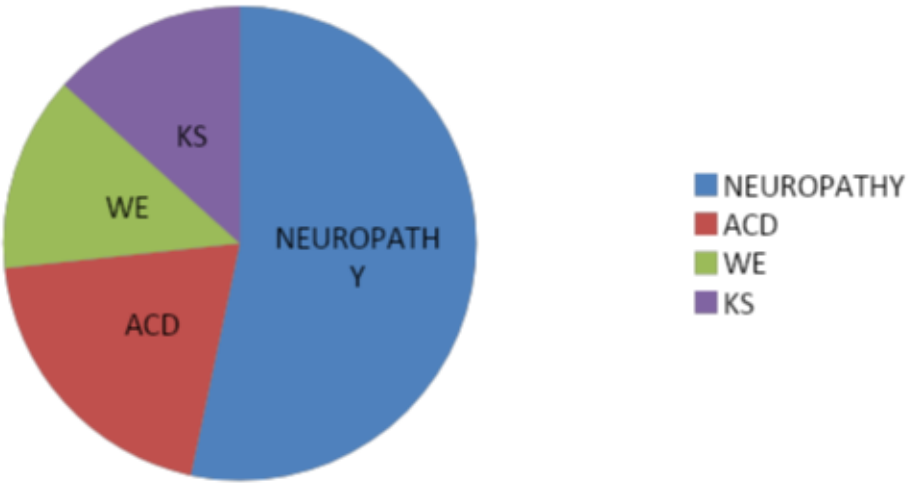

Figure 7: Neurological Manifestations

Discussion

Alcohol is one of the most widely used substances in the world apart from tobacco. Alcohol use has both acute and chronic complications. Alcohol consumption can lead to serious medical consequences especially neurologic disorder. Alcohol effects both brain and peripheral nerves by its direct toxic effects on nervous system and due to Nutritional deficiencies, that develop in patients with alcohol use as they tend to eat less and derive most of their calories from the alcoholic beverages they consume. So far there is scanty amount of literature about neuropsychological manifestations of alcohol consumption in India and overseas.

In our study we studied both neurological and psychiatric manifestations that occur in alcohol using patients. Various studies have shown that questionnaires are more efficient than biochemical or hematological screening tests in detecting alcohol related medical problems. In our study, we used Audit score, CIWA score and DIGS Questionnaire to study various manifestations. We included the subjects in our study, who have scored more than 8 in Audit. As the Audit is simple, quick and the best questionnaire in identifying the harmful alcohol abuse. All the patients were asked about social, legal, psychological and medical issues associated with alcohol consumption along with the neuropsychiatric issues as per Hindi version of DIGS Questionnaire developed by Deshpande et al. We studied alcohol withdrawal syndrome and its severity based on CIWA-Ar score and its correlation with severity of the withdrawal. We studied correlation of Audit score on various neuropsychiatric manifestations. We studied the complete clinical profile of neuropsychiatric manifestations in the inpatients of medicine wards.

Out of 259 patients with history of alcohol drinking, 49% patients were having harmful alcohol drinking (AUDIT >8). This figure was higher than the 21% reported by Srinivasan et al [9], 21% by Gerke et al [10] and 23% by Savitha et al [11]. Cost of alcohol has not increased commensurate with the rates for other items or with inflation.

Most of the patients in our study group were in the age group of 40-45 years and it is similar to previous studies by Patil et al [12] Most of the patients used whisky (76%) which was consistent with the current trend of drinking pattern and previous reports by by Girish N et al [13]

Binge drinking refers to as consuming ≥5 alcoholic drinks on a single occasion. The prevalence of binge drinking was found to be 62% in our study, which is higher than 52% reported by Tavolacci et al [14]. 50% as per Stickley et al [15] and 43% by Hibell et al [16]. in their studies reported that binge drinking is a strong predictor for the development of Delirium tremens. Present study also showed such correlation between binge drinking and Delirium tremens.

Patil et al stated that alcohol withdrawal seizure and alcohol intoxication were the most common neurological manifestation affecting 24% and 26% respectively in their study. These findings are comparable with our study in which alcohol withdrawal seizure and alcohol intoxication affecting 26% and 19% of the patients respectively. Neundorfer et al [17]. also reported that 20.9% had withdrawal seizures 21.6% had delirium tremens in their study.

It is well known that Audit score is useful in identifying harmful drinking and alcohol dependence apart from these certain studies (Pecoraro et al [18]. and Dolman et al [19]. reported that Audit can be useful in predicting the severity of alcohol withdrawal. We also found significant correlation between the Audit score and severe alcohol withdrawal.

Most of the patients had severe withdrawal correlating with CIWA severity scale (>20). The average of the CIWA score was 22.77±6.02 similar to the score of 20.4 ± 9.09 in a study done by Bakhla et al [20]. CIWA score correlated well with the severity of the disease consistent with the study by Kraemer et al [21].

In our study, all the patients with alcohol withdrawal seizures developed GTCS and also 76% of the patient's developed seizure in their first 48 hours, this finding was consistent to previous studies done by H Isabell et al [22].

Previous studies reported that 60-65% of alcoholic patients can have symptoms of depression. But only (37%) had depressive symptoms in our study, due to small sample size of our study. Whereas 18.9% of the patients had history of panic attacks apart from the patients of alcohol withdrawal similar to previous studies by Schuckit et al [23]. and Brady et al [24].

Electro-neurological studies showed most of the patients had axonal neuropathy similar to the study by Ammendola et al [25]. Even electro-neurological findings of decreased Sensory evoked potential amplitudes and involvement of conduction velocity were consistent with the previous studies apart from peripheral neuropathy Monforte et al [26] also evaluated autonomic neuropathy in alcoholic patients but we did not evaluate the autonomic functions in our study. There has not yet been concluding report on the etiology of neuropathy in alcoholics. Shattuck [27] proposed that lack of thiamine [B1] played an important role in developing neuropathy.

Alcoholic cerebellar degeneration was diagnosed in 4% of the patients in our study. Clinical findings

of Gait ataxia and positive Heel shin test were consistent with the findings by Shanmugarajah et al [28].

In our study the mean value of ALT was 93.91 which is 2 times the upper limit of our laboratory (40 units/L) which was similar to study done on 182 alcohol-dependent individuals by Mennecier et al [29] which had ALT level above 1.5-fold the upper limit, they found significant correlation with occurrence of withdrawal seizure, but there was no such correlation in our study. B12 and Foliate deficiency is a well-known manifestation in chronic alcohol intake and poor nutrition. 25% of the patients had B12 deficiency and 7.5% of the patients had Foliate deficiency in our study. As already discussed, alcohol leads to B12 deficiency due to malnutrition, which further leading to pancytopenia in patients. Pancytopenia was present in 7.5% of the patients in our study and B12 was low or low normal in all the patients.

Conclusions

- Alcohol abuse is a common social and medical problem. Alcohol is a known behavioral risk factor for several non-communicable diseases such as coronary artery disease, liver disease and mental health disorders.
- In the present study, we found that, harmful alcohol use is associated with various medical, psychiatric and social issues in inpatients of medicine wards. AUDIT score was helpful in identifying harmful alcohol use.
- The patients with subtle neuropsychiatric manifestations in our study. We also found that alcohol withdrawal symptoms are present in most of the patients having harmful alcohol use. Most of them had severe withdrawal associated with seizures and delirium tremens.
- In our study, CIWA score was found to be useful in identifying such severe withdrawal i.e. higher the CIWA score more the severity of alcohol withdrawal and more the chances of developing alcohol withdrawal seizures and delirium tremens.
- Binge drinking is a pattern of drinking which showed strong association with the development of alcohol withdrawal seizure and delirium tremens. Along with the binge drinking, we also found that AUDIT score can also be helpful in predicting alcohol withdrawal seizure and delirium tremens.
- In the present study, we found that a proper neurological examination can easily identify the patients with subtle neurological manifestations. We also found that there is significant correlation between the depressive symptoms and panic attacks in patients of alcohol use.
- The present cross-sectional observational study studied the various aspects of alcohol use and its effects on body. Our results were consistent with the previous studies.
- The clinical implication of our study has a role in early detection of alcohol abuse and its related neuropsychiatric, medical, social and legal problems and it emphasizes the usefulness of AUDIT and CIWA. Vigilant observation, management and supportive medical care would be highly effective in preventing complications of alcohol use.

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